being free of discreet fibers and being free of breaking, wrapping or knotting, and wherein said hydroentanged web has a cross machine elongation in excess of 100%.

REMARKS

Reconsideration of the rejection of Claims 1-4 and 6-13 is respectfully requested.

Claims 1 and 13 have been delimited to distinguish more clearly over the references of record.

Hydroentanglement is well known in the art and involves passing a web under water jets while the web is supported on a conveyor. It is known to entangle a fiber web. It is also known to entangle fibers with continuous filaments as disclosed in Suskind.

Claims 1 and 13 have been amended to make it clear that the web consists essentially of substantially endless filaments in a continuous web. Thus, these claims are open only for the inclusion of other components that do not materially affect the basic and novel characteristics of the invention. This limitation is being made to make it clear that the addition of discreet fibers to the web is excluded. Also, an elongation value of greater than 100% has been included. This is believed to be a unique value in entangled webs of this general nature.

The Suskind reference merely disclose the hydroentanglement of a layer of soft fibers onto a layer of continuous filaments. As noted above, applicant claims only continuous filaments, and the reference does not disclose any possibility of hydroentanglement of a web of continuous filaments alone.

In fact, it is very clear in the reference that the weak layer of fibers wraps around the filaments, and this is how bonding is achieved. Only the outer fiber layer or layers are impinged by the jets and not the continuous filaments. Although no photomicrographs are included in Suskind, it is apparent that wrapping or knotting of the fibers around the filaments is essential to holding the structure together. As claimed by applicants, there is no wrapping or knotting of the filaments (see also page 16, last paragraph). This results in a fabric having unusual properties such as high strength, and at the same time, high elongation especially in the cross machine direction.

Suskind does not describe the product of the claimed invention. For example, Suskind, at col. 3, lines 51-57 indicate that the "water jets entangle the discrete staple fibers and wood fibers present in the nonelastic web with the continuous filaments producing an intimately blended composite fabric". This is clearly not contemplated by the present applicants. Applicants structure is made up only of continuous filaments, which have been impinged directly by the jets.

An important point is to realize that the use of fibers was always considered as being necessary in a hydroentanglement process. All prior processes using fibers in the claimed denier range involve the knotting of adjacent fibers or knotting of fibers around another substrate. Thus, it is contrary to common wisdom that continuous filaments alone could be entangled. These filaments do not themselves elongate or wrap, so it would seem impossible to achieve a coherent web using hydroentanglement. Applicants believe that it is surprising that such a result could be achieved, since there is no knotting of the filaments as discussed in the specification and defined in the prior art.

There is an additional important distinction between the disclosure Suskind and the claims of the present application. The claims of the present application require the fabric to have an elongation in the cross machine direction in excess of 100 percent. Applicants consider this to be a unique property of a hydroentangled fabric. The fabric is very strong, yet capable of high elongation. Normally, a strong fabric will have a low elongation.

With reference to Suskind, columns 7 and 8, Tables III, IV, and V, it will be seen that the reference fabrics have a cross machine elongation of much less than 100%. In the case of applicants' fabric, this is due to the interengaged spirals as contrasted with a fabric characterized by knotting. The fabric of the present invention has an initially high tensile strength. Continued elongation causes the filaments to disengage or pop out of place, rather than to break due to extensive anchor points or knotting. In other words, the fabrics described in the prior art have a structure which is entirely different than the structure as presently claimed.

In view of the above, the fabrics of the prior art do not have a structure or properties which are inherent in the presently claimed product, and applicants can prove this as a fact. While comparative evidence is difficult to demonstrate, applicants have generated the following data, which is normalized according to basis weight of the fabric. It considered necessary, applicants are prepared to submit this data by way of affidavit.

Example #	Basis Weight (oz/yd^2)	Tensile Values Normalized for Basis Weight Strip q/in/yd^2 MD dry	CD dry	Grab Elongation, % MD	Grab Elongation, % CM
Suskind: 1	2.22	2523	1666		
2	1.94	1596	853		
3	2.58	2029			
Elongation	Grab (q/in/yd^2)				
4	2.20	4746	3302	59	89
5	1.20	3519	2043	50	78
6	1.60	5420	3916	54	75
Present Invention Pre Jet Dying Weights					
Sample 1	5.54	8484	5957	72	110
Sample 2	4.13	7990	5085	62	125
Sample 3	5.43	8471	6262	74	117

It will be seen that the fabrics of the present invention have tensile values much greater than the fabrics of Suskind. Also, the elongation values of the present invention, especially in the cross machine (CM) direction are substantially greater.

With specific reference to the Examiner's comments, applicants agree with the first four paragraphs of paragraph 11. Applicants respectfully disagree with the last paragraph of paragraph 11 due to the amendments to the independent claims. The teachings of Suskind would not result in the product of the present invention for several reasons, including the fact that only the fibers are directly impinged by the water jets to entangle them with the filaments. Based on good technical reasons or common sense alone, the outer layer(s) of fibers act as a filter for the hydraulic pressure exerted on the

web. All that happens is that the fibers entangle without changing the filament substrate to a significant degree. Applicants believe that the claims, as amended, and the above observations meet the burden mentioned by the Examiner. Since the claims have been delimited to excluded fibers, In re Fitgerald is not applicable. The respective products are not identical or slightly different.

Applicants specifically do not agree that the values recited in the claims are common, and this is especially true of cross machine elongation.

Consideration of new claim 45 is also respectfully requested. It will be noted that this claim also excludes the presence of discreet fibers and calls for a minimum elongation valve in the cross machine direction. This claim is believed to be patentable for the same reason as recited above.

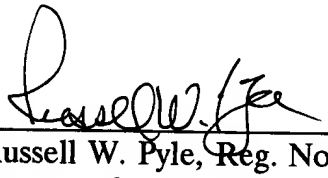
Evans '821 has been considered but is not believed to be pertinent. In Evans, the fibers tangle around the reinforcing filaments. The reinforcing filaments themselves are not entangled, see col. 2, line 40.

Simpson et al. 5,023,130 has been considered but is not believed to be pertinent. This reference does not employ melt extrusion to more filaments, and any filaments have an extremely fine denier.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In view of the foregoing, Claims 1-13 are believed to be in condition for allowance, and such action is respectfully requested.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW
CHANGES MADE

Claim 5 has been canceled.

Claims 1, 11 and 13 have been amended as follows:

1. (AMENDED) A nonwoven fabric comprising a continuous web consisting essentially of substantially endless thermoplastic melt extruded filaments having a denier of 0.5 to 3, wherein said filaments are hydroentangled in the form of interengaged packed loops, with the filaments being free of breaking, wrapping and knotting, and wherein said hydroentangled web has a cross machine elongation value in excess of 100%.

11. (AMENDED) A nonwoven fabric as in claim 1 wherein said continuous web of substantially endless thermoplastic melt extruded filaments comprises a plurality of layers of said web of substantially endless continuous filaments.

13. (AMENDED) A non-woven fabric comprising a continuous web consisting essentially of substantially endless melt extruded thermoplastic filaments having a denier of about 1.0 to 2.5, wherein said filaments are hydroentangled in the form of interengaged packed loops, with the filaments being substantially free of breaking, wrapping, and knotting; said fabric having a basis weight of between about 20 and 450 gm/m^2, having a machine direction elongation value of at least 75% and a cross direction value of at least 100%, having a fiber entanglement frequency of at least 10.0, a fiber entanglement completeness value of at least 1.00, a fiber interlock value of at least 15.

Claim 45 is new.

45. A nonwoven fabric comprising a continuous web of substantially endless thermoplastic melt extruded filaments having a denier of 0.5 to 3, wherein said filaments are directly hydroentanged in the form of interengaged packed loops, with the filaments being free of discreet fibers and being free of breaking, wrapping or knotting, and wherein said hydroentanged web has a cross machine elongation in excess of 100%.